Applicant: Chi Bun CHING Serial No.: 10/582,048

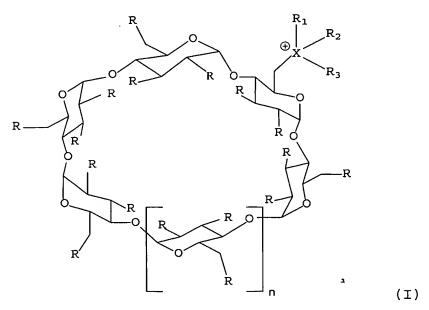
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AMENDMENTS TO THE CLAIMS:

Please amend claims 1, 3-12, 16, 21, 24 and 25 as indicated below. Claim 2 is cancelled and claims 4, 6-9, 12, 21-23, 25, 32, 34 and 36 are withdrawn. This listing of claims replaces all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

(Currently amended) A cationic oligomer of a saccharide of the general 1. formula (I):



wherein:

n = 0 to 8;

X is nitrogen or phosphorus;

R is a hydroxyl, an ester, a carbamate, a carbonate, a phosphinate, a phosphonate, a phosphate, a sulfinate, a sulfinate, a sulfonate, a sulphate, or R'O-, wherein R' is linear or branched (C₁-C₂₀)alkyl, hydroxy(C₁-C₂₀)alkyl, carboxy(C₁-C₂₀)alkyl, aryl, or aryl(C₁-C₂₀)alkyl; and

R₁, R₂ and R₃ are each independently is selected from the group consisting of hydrogen, linear or branched (C₁-C₂₀)alkyl, linear or branched (C₁-C₂₀)alkenyl, linear or branched (C₁-C₂₀)alkynyl, and cycloalkyl; or

R₁ is absent, and R₂ and R₃ are taken together with X to form a ring having the following structure:

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$$X^{+}$$
 R_{4}
 R_{5}

wherein:

m = 0 or 1;

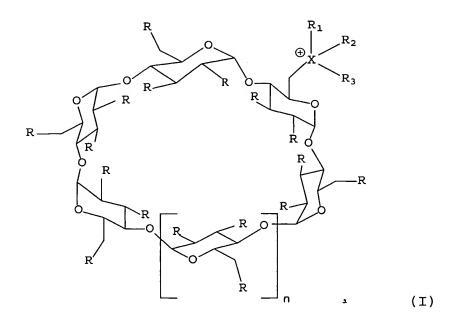
Y is carbon or nitrogen;

 R_4 is hydrogen, linear or branched (C_1 - C_{20})alkyl, linear or branched (C_1 - C_{20})alkenyl, linear or branched (C_1 - C_{20})alkynyl, or cycloalkyl; and

 R_5 is hydrogen, 2-(2-ethoxyethoxy)ethyl, linear or branched (C_1 - C_{20})alkyl, linear or branched (C_1 - C_{20})alkenyl, linear or branched (C_1 - C_{20})alkynyl, cycloalkyl, or NR_6R_7 , wherein R_6 and R_7 are each independently is selected from the group consisting of hydrogen, linear or branched (C_1 - C_{20})alkyl, linear or branched (C_1 - C_{20})alkynyl, and cycloalkyl.

- 2. (Cancelled).
- 3. (Currently Amended) The cationic oligomer of a saccharide according to of claim 2 1, wherein X is nitrogen.
- 4. (Withdrawn and Currently Amended) The cationic oligomer of a saccharide according to of claim 2 1, wherein X is phosphorus.
- 5. (Currently Amended) The cationic oligomer of a saccharide according to of claim 1, wherein R₁ is absent, R₂ and R₃ form a ring, X is nitrogen, Y is nitrogen, and m is 0.
- 6. (Withdrawn and Currently Amended) The cationic oligomer of a saccharide according to \underline{of} claim 1, wherein R_1 is absent, R_2 and R_3 form a ring, X is nitrogen, Y is carbon, and m is 1.
- 7. (Withdrawn and Currently Amended) A cationic oligomer of a saccharide of the general formula (I):

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wherein:

n = 0 to 8;

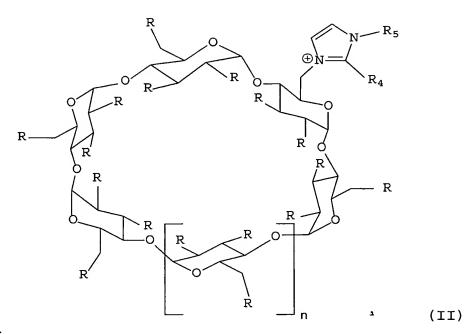
X is nitrogen or phosphorus;

R is a hydroxyl, an ester, a carbamate, a carbonate, a phosphinate, a phosphonate, a phosphate, a sulfinate, a sulfite, a sulfonate, a sulphate, or R'O-, wherein R' is linear or branched (C_1 - C_{20})alkyl, hydroxy(C_1 - C_{20})alkyl, carboxy(C_1 - C_{20})alkyl, aryl, or aryl(C_1 - C_{20})alkyl; and

 R_1 , R_2 and R_3 are each independently <u>is</u> selected from the group consisting of hydrogen, linear or branched (C_1 - C_{20})alkyl, linear or branched (C_1 - C_{20})alkynyl, and cycloalkyl.

- 8. (Withdrawn and Currently Amended) The cationic oligomer of a saccharide according to of claim 7, wherein X is nitrogen.
- 9. (Withdrawn and Currently Amended) The cationic oligomer of a saccharide according to of claim 7, wherein X is phosphorus.
- 10. (Currently amended) A cationic oligomer of a saccharide of the general formula (II):

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wherein:

$$n = 0 \text{ to } 8;$$

R is a hydroxyl, an ester, a carbamate, a carbonate, a phosphinate, a phosphonate, a phosphate, a sulfinate, a sulfinate, a sulfinate, a sulfonate, a sulphate, or R'O-, wherein R' is linear or branched chain (C_1-C_{20}) alkyl, hydroxy (C_1-C_{20}) alkyl, carboxy (C_1-C_{20}) alkyl, aryl, or aryl (C_1-C_{20}) alkyl;

 R_4 is hydrogen, linear or branched (C_1 - C_{20})alkyl, linear or branched (C_1 - C_{20})alkenyl, linear or branched (C_1 - C_{20})alkynyl, or cycloalkyl; and

 R_5 is hydrogen, 2-(2-ethoxyethoxy)ethyl, linear or branched (C_1 - C_{20})alkyl, linear or branched (C_1 - C_{20})alkenyl, linear or branched (C_1 - C_{20})alkynyl, or cycloalkyl.

- 11. (Currently Amended) The cationic oligomer of a saccharide according to of claim 10, wherein R_4 is hydrogen or methyl.
- 12. (Withdrawn and Currently Amended) A cationic oligomer of a saccharide of the general formula (III):

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wherein:

n = 0 to 8;

R is a hydroxyl, an ester, a carbamate, a carbonate, a phosphinate, a phosphonate, a phosphate, a sulfinate, a sulfinate, a sulfonate, a sulphate, or R'O-, wherein R' is linear or branched (C_1 - C_{20})alkyl, hydroxy(C_1 - C_{20})alkyl, carboxy(C_1 - C_{20})alkyl, aryl, or aryl(C_1 - C_{20})alkyl; and

 R_5 is hydrogen, linear or branched (C_1 - C_{20})alkyl, linear or branched (C_1 - C_{20})alkenyl, linear or branched (C_1 - C_{20})alkynyl, cycloalkyl, or NR_6R_7 , wherein R_6 and R_7 are each independently <u>is</u> selected from the group consisting of hydrogen, linear or branched (C_1 - C_{20})alkyl, linear or branched (C_1 - C_{20})alkenyl, linear or branched (C_1 - C_{20})alkynyl, and cycloalkyl.

- 13. (Previously presented) The cationic oligomer of a saccharide of claim 1, wherein n is 1, 2, or 3.
- 14. (Previously presented) The cationic oligomer of a saccharide of claim 1, further comprising a counterion.
- 15. (Previously presented) The cationic oligomer of a saccharide of claim 14, wherein the counterion is fluoride, chloride, bromide, iodide, nitrate, HCO₃⁻, CO₃²-, HSO₄⁻, BF₄⁻, BCl₄⁻, PF₆⁻, SbF₆⁻, AsF₆⁻, AlCl₄⁻, R₉-CO₂⁻ or R₉-SO₃⁻, wherein R₉ is linear or branched

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 (C_1-C_{20}) alkyl, linear or branched (C_1-C_{20}) alkenyl, linear or branched (C_1-C_{20}) alkynyl, cycloalkyl, or aryl (C_1-C_{20}) alkyl.

- 16. (Previously presented) A method of preparing a cationic oligomer of a saccharide as defined in of claim 1, comprising reacting an amine, a phosphine, an imidazole, or a pyridine with an oligomer of a saccharide having a leaving group.
- 17. (Previously presented) The method of claim 16, wherein the leaving group is a halide, a mesylate, a tosylate, a triflate, or a haloformate ester group.
- 18. (Previously presented) The method of claim 17, wherein the halide is an iodide, bromide, or chloride.
- 19. (Previously presented) The method of claim 16, wherein the leaving group is a tosylate.
- 20. (Previously presented) The method of claim 16, wherein the oligomer of a saccharide is mono-6-deoxy-6-tosyl cyclodextrin or mono-2-deoxy-2-tosyl cyclodextrin.
- 21. (Withdrawn and Currently amended) The method of claim 16, wherein the amine and phosphine are

$$R_1 \stackrel{X \sim R_3}{\underset{R_2}{\sim}}$$

wherein X, R₁, R₂, and R₃ are defined as in claim 1.

- 22. (Withdrawn) The method of claim 21, wherein X is nitrogen.
- 23. (Withdrawn) The method of claim 21, wherein X is phosphorous.
- 24. (Currently amended) The method of claim 16, wherein the imidazole is

$$N \longrightarrow N - R_5$$

wherein R₄ and R₅ are defined as in claim 1.

25. (Withdrawn and Currently amended) The method of claim 16, wherein the pyridine is

wherein R₅ is defined as in claim 1.

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26. (Previously presented) A method for enantiomeric separation of a mixture of racemates, comprising:

providing a cationic oligomer of a saccharide as defined in claim 1 as a chiral agent; mixing the cationic oligomer of the saccharide with the mixture of racemates; and enantioseparating the racemates by a chromatographic method.

- 27. (Previously presented) The method of claim 26, wherein the chromatographic method is selected from the group consisting of gas chromatography (GC), liquid chromatography (LC), high performance liquid chromatography (HPLC), capillary electrophoresis (CE), and sub or supercritical fluid chromatography (SFC).
- 28. (Previously presented) A method for asymmetric synthesis of a compound, comprising:

providing a cationic oligomer of a saccharide as defined in claim 1 as a chiral agent; and performing the asymmetric synthesis reaction in the presence of the chiral agent.

- 29. (Previously presented) The method of claim 28, wherein the asymmetric synthesis is a reduction or a pericyclic reaction.
- 30. (Previously presented) The method of claim 29, wherein the pericyclic reaction is an ene or a Diels Alder reaction.
- 31. (Previously presented) The cationic oligomer of a saccharide of claim 10, wherein n is 1, 2 or 3.
- 32. (Withdrawn) The cationic oligomer of a saccharide of claim 12, wherein n is 1, 2 or 3.
- 33. (Previously presented) The cationic oligomer of a saccharide of claim 10, further comprising a counterion.
- 34. (Withdrawn) The cationic oligomer of a saccharide of claim 12, further comprising a counterion.
- 35. (Previously presented) A method of preparing a cationic oligomer of a saccharide as defined in claim 10, comprising reacting an amine, a phosphine, an imidazole, or a pyridine with an oligomer of the saccharide having a leaving group.
- 36. (Previously presented) A method of preparing a cationic oligomer of a saccharide as defined in claim 12, comprising reacting an amine, a phosphine, an imidazole, or a pyridine with an oligomer of the saccharide having a leaving group.

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37. (Previously presented) A method for enantiomeric separation of a mixture of racemates, comprising:

providing a cationic oligomer of a saccharide as defined in claim 10 as a chiral agent; mixing the cationic oligomer of the saccharide with the mixture of racemates; and enantioseparating the racemates by a chromatographic method.

38. (Previously presented) A method for enantiomeric separation of a mixture of racemates, comprising:

providing a cationic oligomer of a saccharide as defined in claim 12 as a chiral agent; mixing the cationic oligomer of the saccharide with the mixture of racemates; and enantioseparating the racemates by a chromatographic method.

39. (Previously presented) A method for asymmetric synthesis of a compound, comprising:

providing a cationic oligomer of a saccharide as defined in claim 10 as a chiral agent; and performing the asymmetric synthesis reaction in the presence of the chiral agent.

40. (Previously presented) A method for asymmetric synthesis of a compound, comprising:

providing a cationic oligomer of a saccharide as defined in claim 12 as a chiral agent; and performing the asymmetric synthesis reaction in the presence of the chiral agent.